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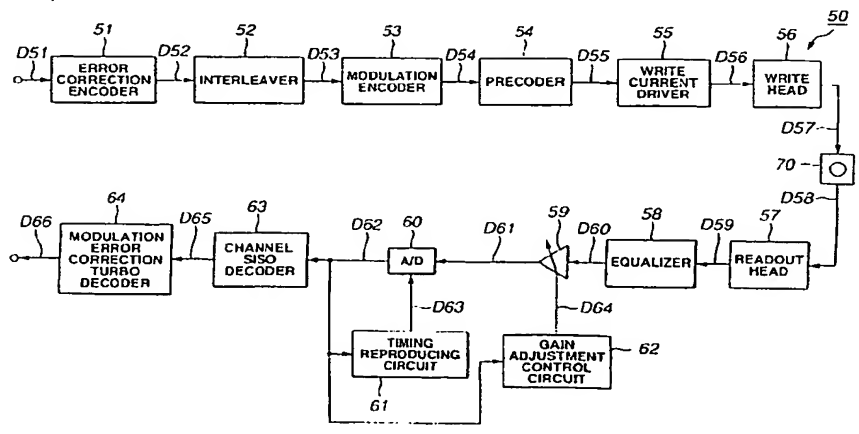
(12) **EUROPEAN PATENT APPLICATION**

<p>(88) Date of publication A3: 17.12.2003 Bulletin 2003/51</p> <p>(43) Date of publication A2: 26.09.2001 Bulletin 2001/39</p> <p>(21) Application number: 01302686.9</p> <p>(22) Date of filing: 22.03.2001</p>	<p>(51) Int Cl.7: <b>G11B 20/18, G11B 20/14, H03M 5/14, H03M 13/27, H03M 13/29, G11B 20/10</b></p>
<p>(84) Designated Contracting States: <b>AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR</b> Designated Extension States: <b>AL LT LV MK RO SI</b></p> <p>(30) Priority: 23.03.2000 JP 2000087128</p> <p>(71) Applicant: <b>SONY CORPORATION</b> Tokyo 141 (JP)</p>	<p>(72) Inventors: • <b>Hattori, Masayuki</b> Shinagawa-ku, Tokyo (JP) • <b>Murayama, Jun</b> Shinagawa-ku, Tokyo (JP) • <b>Miyauchi, Toshiyuki</b> Shinagawa-ku, Tokyo (JP)</p> <p>(74) Representative: <b>Pratt, Richard Wilson et al</b> D. Young &amp; Co, 21 New Fetter Lane London EC4A 1DA (GB)</p>

(54) **Recording and/or reproducing data**

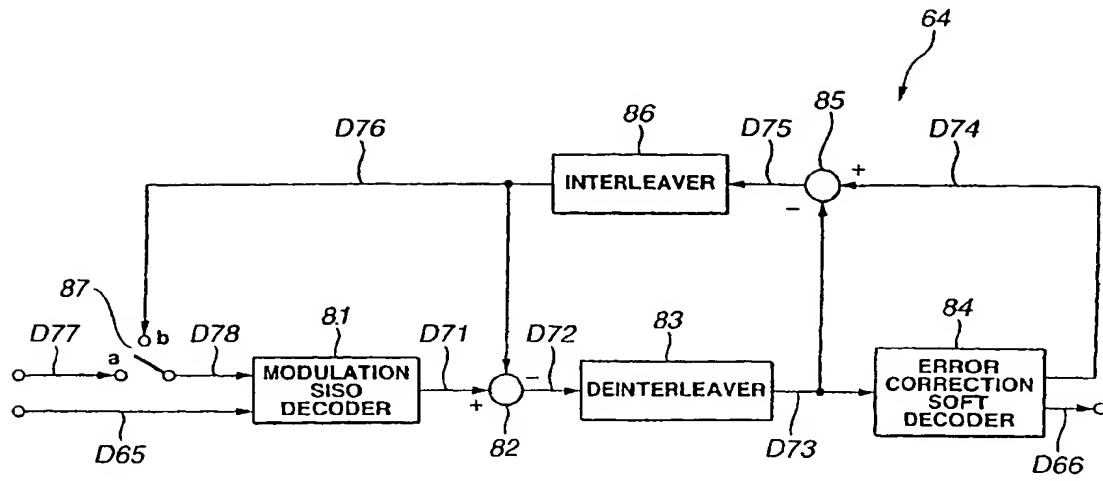
(57) A magnetic recording and/or reproducing apparatus achieves high performance encoding and high efficiency decoding to lower the decoding error rate. A magnetic recording and/or reproducing apparatus (50) includes, in its recording system, an error correction coder (51) for error correction coding input data and an interleaver (52) for scrambling the sequence of data supplied from the error correction coder (51). The magnetic recording and/or reproducing apparatus (50) also includes, in its reproducing system, A modulation and

error correction turbo decoder (64). The decoder (64) has a deinterleaver for scrambling and re-arraying the sequence of the input data such as to restore the sequence of input data re-arrayed by the interleaver (52) to an original bit sequence, an error correction soft decoder (84) for decoding data supplied from the deinterleaver and a second interleaver (86) for scrambling and re-arraying the sequence of data given as a difference between data output from the error correction soft decoder and data output from the deinterleaver.



**FIG.7**

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**FIG.8**



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# EUROPEAN SEARCH REPORT

Application Number

EP 01 30 2686

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A	SOUVIGNIER T ET AL: "Turbo Decoding for PR4: Prallel Versus Serial Concatenation" ICC '99. 1999 IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS. CONFERENCE RECORD. VANCOUVER, CA, JUNE 6 - 10, 1999, IEEE INTERNATIONAL CONFERENCE ON COMMUNICATIONS, NEW YORK, NY: IEEE, US, vol. 3, 6 June 1999 (1999-06-06), pages 1638-1642, XP002170541 ISBN: 0-7803-5285-8 * the whole document *	1-78	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H03M G11B
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The present search report has been drawn up for all claims			
Place of search: THE HAGUE		Date of completion of the search 23 October 2003	Examiner Ogor, M
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document</p> <p>T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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EP 01 30 2686

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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 October 2003	Examiner Ogor, M
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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Application Number  
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<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p>		<p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>	

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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23-10-2003

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For more details about this annex . see Official Journal of the European Patent Office, No. 12/82